

DATE:
April 2006

PROJECT NUMBER:
129684

**BROWN AND
CALDWELL**
Carson City, Nevada

Atlantic Richfield
Company

Figure 2-8

Well B/W-4D Construction Details

Project Name: Yerington Groundwater InvestigationWell Number: B/W-4Soil Boring ☐Monitoring Well ☒

Project Number:

121243.021Sheet 1 of 15Boring Location: North of mine tailings, in Sunset Hills residential areaElevation: 4381.5 feet amslEast: 322902.3
North: 1563779.6Drilling Contractor: WDCDriller: B. ZamowDate Started: 8/21/05Date Finished: 8/26/05Drilling Equipment: Gus Pech GP24-400RS, Diedrich Sonic HeadTotal
Depth: (feet) 189.0Water Depth:
(feet) 57.5' / 54.00'Sampling Method: Core BarrelBorehole Diameter: 6"Well Diameter
and Material: 2-inch PVCDrilling Method: Sonic, utilized 6" casing and a 4.5" core barrelScreened Interval
and Well Depth: 153.5-173.5 ft., bottom at 173.7 ft.Well Seal: Bentontite and CementSlot Size: 0.020"Filter Material: #10-20 Silica SandLogged By: C. GardnerDevelopment Method: Swabbed, bailed, pumped

| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|---|------------|-------------|-----------|------|---|
| | | | | | Sample | Lithology | Well | |
| 4380 | | SM | <u>SILTY SAND</u> (0-6 feet) Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to ~30 mm, ~5% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and do not react to HCl. | | | | | Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. |
| 5 | | | | | | | | Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet. |
| | | | | | | | | Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line. |
| | | | | | | | | All depths are below land surface unless stated otherwise. |
| | | | | | | | | WELL DESIGN for B/W-4D: Screened Interval: 153.5-173.5 feet. Bottom of sump: 173.7 feet. |
| 4375 | | SM | <u>SILTY SAND with GRAVEL</u> (6-11 feet) Dry, loose, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm, and ~15% silt and clay. The sand is angular to subangular and the gravel is angular. The fines are nonplastic, brown, and do not react to HCl. | | | | | Cement Grout: 0-147 feet. Bentonite Chips: 147-150 feet. Filter Pack: #60 Sand 150-150.7 feet, #10-20 Sand 150.7-174 feet. Native Collapse: 174-189 feet |
| | | | | | | | | Depth to Water Measuring Point is Top of PVC Casing. |
| | | | | | | | | Top of PVC Elevation: 4,383.96 feet, amsl. PVC Stick-up: 2.5 feet above land surface. |

Project Name: Yerington Groundwater InvestigationWell Number: B/W-4Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 2 of 15

| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|--|------------|-------------|-----------|------|---------|
| | | | | | Sample | Lithology | Well | |
| 15 | 4370 | SM | SILTY SAND with GRAVEL (11-16 feet) Dry, loose, no odor. Primarily medium to fine sand with ~15% gravel to ~45 mm, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, light brown, and do not react to HCl. | | | | | |
| | 4365 | SM | SILTY SAND with GRAVEL (16-17 feet) Dry, loose, no odor. Primarily medium to fine sand with ~25% gravel to ~55 mm, ~15% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, grayish brown, and do not react to HCl. | | | | | |
| | | SC | CLAYEY SAND (17-18.5 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~15 mm, ~5% coarse sand, and ~30% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl. | | | | | |
| | | SC | SILTY SAND (18.5-20 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~20 mm, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have weak to no reaction to HCl. | | | | | |
| 20 | | SC | CLAYEY SAND with GRAVEL (20-21 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~20 mm, ~5% coarse sand, and ~30% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, light brown, and have a strong reaction to HCl. | | | | | |
| | 4360 | SC | CLAYEY SAND with GRAVEL (21-22.75 feet) Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~15 mm, and ~25% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have medium plasticity and medium toughness, are brown, and do not react to HCl. | | | | | |
| | | SM | SILTY SAND (22.75-23.25 feet) | | | | | |

Project Name: Yerington Groundwater InvestigationWell Number: B/W-4Soil Boring ☐Monitoring Well ☒

Project Number:

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| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|--|------------|-------------|-----------|------|---------|
| | | | | | Sample | Lithology | Well | |
| 25 | 4355 | SC | Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and do not react to HCl. | | | | | |
| | | SM | <u>CLAYEY SAND</u> (23.25-24 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to ~15 mm, trace coarse sand, and ~30% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have medium plasticity and medium toughness, are brown, and have no to a strong reaction to HCl. | | | | | |
| | | SC | <u>SILTY SAND with GRAVEL</u> (24-25 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~15 mm, ~5% coarse sand, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and do not react to HCl. | | | | | |
| | | | <u>CLAYEY SAND</u> (25-29.25 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~20 mm, ~5% coarse sand, and ~40% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have medium plasticity and medium toughness, are brown, and do not react to HCl. | | | | | |
| | | SM | <u>SILTY SAND</u> (29.25-30 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, ~5% coarse sand, and ~25% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have no to a weak reaction to HCl. | | | | | |
| | | SC | <u>CLAYEY SAND</u> (30-31 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~25 mm, ~5% coarse sand, and ~40% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have medium plasticity and medium toughness, are brown (10 YR 5/3), and have a weak reaction to HCl. | | | | | |
| 35 | 4350 | SM | <u>SILTY SAND with GRAVEL</u> (31-36.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~20 mm, ~15% coarse sand, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and do not react to HCl. | | | | | |

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| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|--|------------|-------------|-----------|------|---------|
| | | | | | Sample | Lithology | Well | |
| 4345 | | SM | SILTY SAND (36.5-40 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~20 mm, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a weak reaction to HCl. | | | | | |
| 40 | | SM | SILTY SAND with GRAVEL (40-41.5 feet) Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~20 mm, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and do not react to HCl. | | | | | |
| 4340 | | SM | SILTY SAND (41.5-44 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~15 mm, ~5% coarse sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl. | | | | | |
| 45 | | CL | SANDY LEAN CLAY (44-44.5 feet) Dry, dense, no odor. | | | | | |
| | | SM | Primarily silt and clay with ~5% gravel to ~15 mm, ~40% medium to fine sand, and ~5% coarse sand. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have medium plasticity and medium toughness, are brown (10YR 5/3), and have a strong reaction to HCl. | | | | | |
| | | SC | SILTY SAND (44.5-45 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~15 mm, ~5% coarse sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl. | | | | | |
| 4335 | | | CLAYEY SAND (45-47.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~20 mm, ~5% coarse sand, and ~30% silt and clay. The sand is subangular to subrounded and the gravel is angular. The fines have medium plasticity and medium toughness, are brown, and have a strong to weak reaction to HCl. | | | | | |
| | | SW-SM | WELL GRADED SAND with SILT (47.5-49.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~40 mm, ~5% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |

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| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|--|------------|-------------|-----------|------|---------|
| | | | | | Sample | Lithology | Well | |
| 50 | | SW-SM | WELL GRADED SAND with SILT AND GRAVEL (49.5-50.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~30 mm, ~15% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | 4330 | SW | WELL GRADED SAND with SILT and GRAVEL (50.5-53.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~45 mm, ~15% coarse sand, and ~5% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SW-SM | WELL GRADED SAND with SILT (53.5-55 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, ~15% coarse sand, and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| 55 | | SM | SILTY SAND (55-57.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~30 mm, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | 4325 | | | | | | | |
| | | SW-SM | WELL GRADED SAND with SILT (57.5-58.5 feet) Saturated, medium dense, no odor. Primarily medium to coarse sand with ~5% gravel to ~20 mm, ~10% fine sand, and ~5% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SW-SM | WELL GRADED SAND with SILT AND GRAVEL (58.5-60 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~50 mm, ~15% coarse sand, and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| 60 | | SW-SM | WELL GRADED SAND with SILT (60-62.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~15 mm, and ~10% silt and clay. The sand is angular to subrounded and the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | 4320 | | | | | | | |

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Project Number:

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| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|---|---------------------|-------------|-----------|------|---------|
| | | | | | Sample | Lithology | Well | |
| 65 | 4315 | SW-SM | WELL GRADED SAND with SILT AND GRAVEL (62.5-63.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~50 mm, ~15% coarse sand, and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | B/W-4 @ 62 - 67 Ft. | | | | |
| | | GW-GM | WELL GRADED GRAVEL with SILT AND SAND (63.5-64.5 feet) Saturated, medium dense, no odor. Primarily gravel to ~60 mm, ~35% medium to fine sand, ~15% coarse sand, and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no to a weak reaction to HCl. | | | | | |
| | | SW-SM | WELL GRADED SAND with SILT (64.5-66.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~40 mm, ~15% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | CL | SANDY LEAN CLAY (66.5-67 feet) Moist, stiff, no odor. Primarily silt and clay with ~5% gravel to ~50 mm, ~40% medium to fine sand, and ~5% coarse sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are yellowish-brown (10YR 5/4), and have no reaction to HCl. | | | | | |
| 70 | 4310 | SW-SM | WELL GRADED SAND with SILT AND GRAVEL (67-69.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~40 mm, ~15% fine sand, and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SM | SILTY SAND (69.5-70.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~35 mm, and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl. | | | | | |
| | | SW-SM | WELL GRADED SAND with SILT AND GRAVEL (70.5-91.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~50 mm, ~15% fine sand, and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| 75 | | | | | | | | |

Project Name: Yerington Groundwater Investigation

Well Number: B/W-4

Soil Boring ☐

Monitoring Well ☒

Project Number: 121243.021

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| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|-------------|------------|-------------|-----------|------|---------|
| | | | | | Sample | Lithology | Well | |
| 4305 | | | | | | | | |
| 80 | | | | | | | | |
| 4300 | | | | | | | | |
| 85 | | | | | | | | |
| 4295 | | | | | | | | |

B/W-4 @ 78 - 83 Ft.

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| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|---|------------|-------------|-----------|------|---------|
| | | | | | Sample | Lithology | Well | |
| 90 | | | | | | | | |
| 4290 | | | | | | | | |
| | | CL | SANDY LEAN CLAY (91.5-93 feet) Dry to moist, dense, no odor. Primarily silt and clay with ~10% gravel to ~25 mm, ~15% coarse sand, and ~35% medium to fine sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have no reaction to HCl. | | | | | |
| | | SM | SILTY SAND (93-96 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~25 mm, ~5% coarse sand, and ~30% silt and clay. The sand is angular to subrounded and the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl. | | | | | |
| 95 | | | | | | | | |
| 4285 | | CL | SANDY LEAN CLAY (96-97 feet) Dry to moist, dense, no odor. Primarily silt and clay with ~5% gravel to ~20 mm, ~5% coarse sand, and ~25% medium to fine sand. The sand is angular to subrounded and the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have no to a strong reaction to HCl. | | | | | |
| | | SM | SILTY SAND (97-100 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~15 mm, and ~40% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have low plasticity and toughness, are brown, and have no reaction to HCl. | | | | | |
| 100 | | | | | | | | |
| 4280 | | SM | SILTY SAND (100-101.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, ~15% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |

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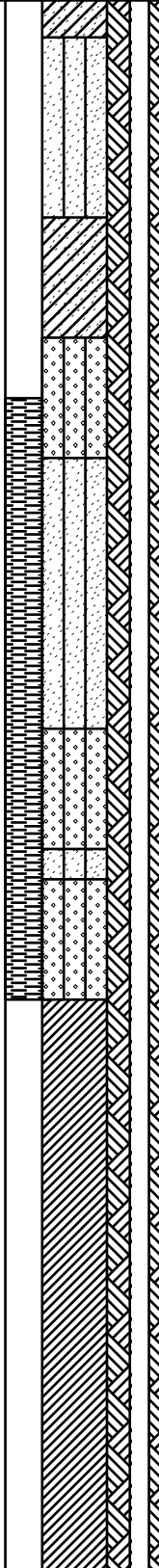
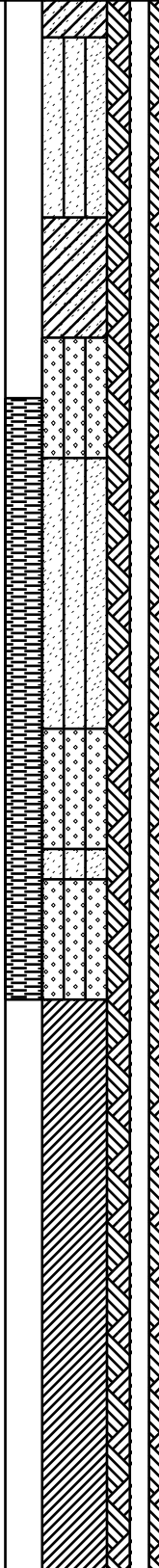
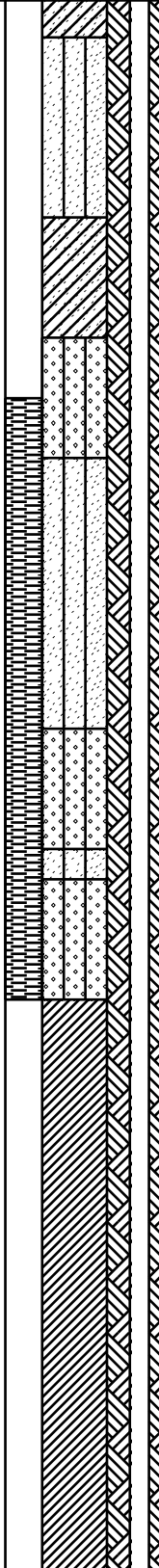
| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|--|-----------------------|-------------|-----------|------|---------|
| | | | | | Sample | Lithology | Well | |
| 105 | 4275 | SM | SILTY SAND (101.5-103 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, ~15% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | B/W-4 @ 100 - 105 Ft. | | | | |
| | | SM | SILTY SAND (103-104.25 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~25 mm, ~15% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SM | SILTY SAND (104.25-105.25 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~55 mm, ~5% coarse sand, and ~25% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no to a weak reaction to HCl. | | | | | |
| | | SC | CLAYEY SAND (105.25-109 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~55 mm, ~20% coarse sand, and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a weak to strong reaction to HCl. | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 110 | 4270 | SM | SILTY SAND (109-112.5 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~15 mm, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no to a weak reaction to HCl. | | | | | |
| | | SM | SILTY SAND (112.5-113.5 feet) Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, ~25% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl. | | | | | |
| | | SM | SILTY SAND (113.5-115.5 feet) Moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~15 mm, ~5% coarse sand, and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity | | | | | |

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| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|---|------------|-------------|-----------|------|---------|
| | | | | | Sample | Lithology | Well | |
| 115 | | | and toughness, are brown, and have a strong to weak reaction to HCl. | | | | | |
| | 4265 | SM | SILTY SAND with GRAVEL (115.5-116.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm, ~15% coarse sand, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SW | WELL GRADED SAND (116.5-118 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~35 mm, ~20% coarse sand, and ~5% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SC | CLAYEY SAND (118-119.5 feet) Moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm, and ~35% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl. | | | | | |
| 120 | | SM | SILTY SAND (119.5-120 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~20 mm, ~5% coarse sand, and ~35% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl. | | | | | |
| | 4260 | SM | SILTY SAND (120-123 feet) Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~40 mm, ~5% coarse sand, and ~35% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl. | | | | | |
| | | SC | CLAYEY SAND (123-127.5 feet) Moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~35 mm, ~5% coarse sand, and ~40% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl. | | | | | |
| 125 | | | | | | | | |
| | 4255 | | | | | | | |
| | | SC | CLAYEY SAND (127.5-128 feet) | | | | | |

B/W-4 @ 115 - 120 Ft.

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| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|--|-----------------------|---|---|---|---------|
| | | | | | Sample | Lithology | Well | |
| 130 | 4250 | SM | Moist, very dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm, trace amounts of coarse sand, and ~30% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have no reaction to HCl. | B/W-4 @ 131 - 136 Ft. |  |  |  | |
| | | | <u>SILTY SAND</u> (128-129.5 feet) | | | | | |
| | | SC | Saturated, dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm, trace amounts of coarse sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have low plasticity and toughness, are brown, and have no reaction to HCl. | | | | | |
| | | | <u>CLAYEY SAND</u> (129.5-130.5 feet) | | | | | |
| | | SW-SM | Moist to saturated, dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm, trace amounts of coarse sand, and ~30% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl. | | | | | |
| | | SM | <u>WELL GRADED SAND with GRAVEL</u> (130.5-131.5 feet) | | | | | |
| | | | Saturated, medium dense, no odor. Primarily coarse to medium sand with ~20% gravel to ~20 mm, ~10% fine sand, and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | | <u>SILTY SAND</u> (131.5-133.75 feet) | | | | | |
| | | | Moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~20 mm, trace amounts of coarse sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SW-SM | <u>WELL GRADED SAND with SILT AND GRAVEL</u> (133.75-134.75 feet) | | | | | |
| 135 | 4245 | SM | Saturated, medium dense, no odor. Primarily coarse to medium sand with ~30% gravel to ~30 mm, ~10% fine sand, and ~10% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SW-SM | <u>SILTY SAND</u> (134.75-135 feet) | | | | | |
| | | | Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~15 mm, ~5% coarse sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | CL | <u>WELL GRADED SAND with SILT AND GRAVEL</u> (135-136 feet) | | | | | |
| 140 | | | Saturated, medium dense, no odor. Primarily coarse to medium sand with ~30% gravel to ~30 mm, ~10% fine sand, and ~10% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | | <u>SANDY LEAN CLAY with GRAVEL</u> (136-139 feet) | | | | | |
| | | | Moist, moist to dry in lower portion of interval, hard, no odor. Primarily silt and clay with ~15% gravel to ~20 mm, coarse sand, and ~35% coarse to fine sand. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have no reaction to HCl. | | | | | |

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| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|--|------------|-------------|-----------|------|---------|
| | | | | | Sample | Lithology | Well | |
| 4240 | | SP-SM | POORLY GRADED SAND with SILT (141.5-142.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~20 mm, trace amounts of coarse sand, and ~10% silt and clay. The sand is subangular to rounded and the gravel is subangular to subrounded. The fines are non-plastic, are brown, and have no reaction to HCl. | | | | | |
| | | SM | SILTY SAND with GRAVEL (142.5-143.5 feet) Moist, dense, no odor. Primarily coarse, medium, and fine sand with ~20% gravel to ~50 mm, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are non-plastic, are brown, and have no reaction to HCl. | | | | | |
| 145 | | CL | SANDY LEAN CLAY (143.5-146 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~5% gravel to ~25 mm, ~5% coarse sand, and ~40% medium and fine sand. The sand is subangular to subrounded and the gravel is angular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have no reaction to HCl. | | | | | |
| 4235 | | SC | CLAYEY SAND (146-147 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~8 mm, and ~25% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity, low to medium toughness, are brown, and have no reaction to HCl. | | | | | |
| | | SM | SILTY SAND with GRAVEL (147-148.5 feet) Saturated, medium dense, no odor. Moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SM | SILTY SAND with GRAVEL (148.5-149.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~40 mm, ~25% coarse sand, and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| 150 | | SM | SILTY SAND (149.75-150.5 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~10 mm, and ~15% silt and clay. The sand is subangular and the gravel is subrounded to subangular. The fines are no to low plasticity, no to low toughness, are brown, and have no reaction to HCl. | | | | | |
| | | SM | SILTY SAND with GRAVEL (150.5-151.75 feet) Moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm, ~15% coarse sand, and ~20% silt and clay. The sand is subangular to angular and the gravel is subrounded to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| 4230 | | SM | SILTY SAND with GRAVEL (151.75-152.5 feet) Moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~20 mm, ~30% coarse sand, and ~15% silt and clay. The sand and gravel is subangular to angular. The fines have low plasticity and toughness, are brown, and have no reaction to HCl. | | | | | |
| | | SC | CLAYEY SAND with GRAVEL (152.5-155 feet) Moist, dense, no odor. | | | | | |

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Project Number:

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| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|--|------------|-------------|-----------|------|---------|
| | | | | | Sample | Lithology | Well | |
| 155 | | | Primarily medium to fine sand with ~20% gravel to ~20 mm, ~25% coarse sand, and ~30% silt and clay. The sand and gravel is subangular to angular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl. | | | | | |
| | | SW-SM | WELL GRADED SAND with SILT (155-156 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~5% gravel to ~30 mm, ~10% fine sand, and ~10% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | 4225 | SW-SM | WELL GRADED SAND with SILT AND GRAVEL (156-157.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~40% gravel to ~30 mm, ~10% fine sand, and ~10% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SC | CLAYEY SAND with GRAVEL (157.5-163 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~30% gravel to ~25 mm, ~5% coarse sand, and ~35% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl. | | | | | |
| 160 | | | | | | | | |
| | 4220 | | | | | | | |
| | | SW-SM | WELL GRADED SAND with SILT AND GRAVEL (163-164.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~40% gravel to ~50 mm, ~10% fine sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is subrounded. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SM | SILTY SAND with GRAVEL (165.5-166 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~35% gravel to ~30 mm, ~15% fine sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| 165 | | | | | | | | |
| | | SC | CLAYEY SAND (166-166.5 feet) Moist, dense, no odor. | | | | | |
| | 4215 | SM | Primarily medium to fine sand with trace gravel to ~8 mm, and ~35% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness. | | | | | |

B/W-4 @ 154 - 159 Ft.

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| Depth (feet) | Elevation (feet) | USCS Group Symbol | Description | Sample No. | Graphic Log | | | Remarks |
|--------------|------------------|-------------------|--|------------|-------------|-----------|------|---------|
| | | | | | Sample | Lithology | Well | |
| 170 | 4210 | | light brown, and have no reaction to HCl. | | | | | |
| | | | SILTY SAND with GRAVEL (166.5-167.5 feet) | | | | | |
| | | SC | Moist, dense, no odor. | | | | | |
| | | NR | Primarily coarse to medium sand with ~20% gravel to ~30 mm, ~15% fine sand, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, light brown, and have no reaction to HCl. | | | | | |
| 175 | 4205 | | CLAYEY SAND (167.5-168 feet) | | | | | |
| | | | Dry to moist, very dense, no odor. | | | | | |
| | | SW | Primarily medium to fine sand with ~10% gravel to ~40 mm, and ~40% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, light brown, and have no to a strong reaction to HCl. | | | | | |
| | | | No Recovery (168-169 feet) | | | | | |
| | | | WELL GRADED SAND with GRAVEL (169-171.5 feet) | | | | | |
| | | | Saturated, medium dense, no odor. | | | | | |
| | | CL | Primarily coarse to medium sand with ~45% gravel to ~40 mm, ~10% fine sand, and ~5% silt and clay. The sand is angular to subangular and the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SM | Primarily silt and clay with trace coarse sand to ~4.5 mm, and ~30% medium to fine sand. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish-brown (2.5Y 4/2), and have no reaction to HCl. | | | | | |
| | | | SILTY SAND (172-175 feet) | | | | | |
| | | | Moist, medium dense, no odor. | | | | | |
| | | | Primarily medium to fine sand with ~5% gravel to ~10 mm, and ~30% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have no reaction to HCl. | | | | | |
| | | SW-SM | WELL GRADED SAND with SILT (175-176 feet) | | | | | |
| | | | Saturated, medium dense, no odor. | | | | | |
| | | | Primarily coarse to medium sand with ~10% gravel to ~10 mm, ~20% fine sand, and ~10% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | SM | WELL GRADED SAND with SILT (175-176 feet) | | | | | |
| | | | Saturated, medium dense, no odor. | | | | | |
| | | | Primarily coarse to medium sand with ~10% gravel to ~10 mm, ~20% fine sand, and ~10% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl. | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | SC | CLAYEY SAND (178.5-186 feet) | | | | | |
| | | | Dry to moist, dense, no odor. | | | | | |
| | | | Primarily medium to fine sand with ~10% gravel to ~45 mm, and ~30% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl. | | | | | |
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B/W-4 @ 168 - 173 Ft.

BORING LOG

Well Number: **B/W-4**

Monitoring Well

Project Number:

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